



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,830	11/19/2001	Willem Van Schaik	P 284105 P-0294.000-US	8828

909 7590 07/14/2003  
PILLSBURY WINTHROP, LLP  
P.O. BOX 10500  
MCLEAN, VA 22102

EXAMINER

NGUYEN, HUNG

ART UNIT	PAPER NUMBER
----------	--------------

2851

DATE MAILED: 07/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/988,830

Applicant(s)

VAN SCHAİK ET AL.

Examiner

Hung Henry V Nguyen

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-2, 4, 6-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 09/988,391. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-2, 4, 6, 6-14 of the instant application are merely re-written versions of claims 1-8 of application 09/988,391 .

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Since, the subject matter claimed in the instant application is fully disclosed in the referenced copending application (09/988,391) and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: a lithographic projection apparatus and correspond method having "a radiation system to supply a projection beam of electromagnetic

Art Unit: 2851

radiation...of 250nm or less”. “a support structure adapted to support...to a desired pattern”, “a substrate table to hold a substrate”, “a projection system...of the substrate”, and “a gas supply”.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5, 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hase et al (U.S.Pat. 6,252,648) in view of Somekh (U.S.Pat. 6,394,109)

With respect to claims 1-5, 7-12, Hase et al (fig.1) teaches an exposure apparatus and method for cleaning the contaminants on the plural optical elements, comprising substantially all of the limitations of the instant claims such as: a light radiation system (6) for providing a projection beam of electromagnetic radiation having a wavelength of 250nm or less ; a support structure (inherent element of exposure apparatus) for supporting a reticle (3) which can be used to pattern the projection beam according to predetermined pattern; a substrate table (an inherent element of exposure apparatus) to hold a substrate (4); a projection lens (5) for projecting the patterned beam onto a target portion of the substrate; a gas supply (8a, 10a) constructed and

Art Unit: 2851

arranged to supply a purge gas to a space in the exposure apparatus, the space containing an optical component, wherein the purge gas comprises an amount of oxygen/ "purge gas comprises an oxygen-containing species" having a predetermined concentration (e.g., not greater than a few grams per  $1\text{m}^3$ ) (see col.4, lines 45-49). Hase further teaches the purge gas comprising inert gas such as helium, argon, nitrogen or a mixture thereof (see claim 5 of Hase). Hase et al does not expressly teach that purge gas comprises a containing species being selected from water, nitrogen oxide and oxygen-containing hydrocarbons, as well as alcohols, alkanones and ethers. Somekh teaches a method and apparatus for removing the contaminating object formed on the surface of components in a lithography exposure system using a cleaning system including an oxygen gas (216) to remove the contaminants. Somekh specifically teaches the oxygen "may be sourced from any oxygen containing compounds, such as  $\text{O}_3$ ,  $\text{N}_2\text{O}$ , water vapor, doped oxygen compounds, alcohol compounds and other like compounds that are either neutral or ionized" (see col.5, lines 42-50) wherein the flow rate and pressure of the oxygen containing species are predetermined. In view of such teachings, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Hase and Somekh to obtain the invention as claimed for the purpose of cleaning the optical components in the lithographic apparatus and improving the quality of the imaging system. It would have been obvious to a skilled artisan to provide the oxygen containing species from water, nitrogen oxide, alcohol compounds...or the like as suggested by Somekh into the exposure device of Hase for removing the contaminants at a highest level.

Art Unit: 2851

Further it has been held to be within the general skill of an artisan in the art to select a known gas/material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

As to claims 2, 5, 9, it is noted that since Hase teaches the purge gas comprises an amount of containing having a predetermined concentration (e.g., not greater than a few grams per  $1\text{m}^3$ ) (see col.4, lines 45-49) and Somekh also teaches the flow rate and pressure of the oxygen containing species are predetermined. This provides a clear suggestion that it would have been obvious to a skilled artisan to determine the proper pressure and proper amount of containing in the purge gas in order to achieve a highly effective apparatus/method of cleaning optical elements in the exposure device/method. Also, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

5. Claims 6, 8-9, 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hase et al (U.S.Pat. 6,252,648) in view of Somekh (U.S.Pat. 6,394,109) and further in view of Akagawa et al (U.S.Pat. 6,288,769).

With respect to claims 6, 8-9, and 13-14, Hase as modified by Somekh, discloses substantially all basic features of the instant claims except for supplying an electromagnetic radiation having a wavelength of 250 nm or less for removing the contaminants. However, this technique is well known per se. For example, Akagawa teaches using ArF light or light beams having wavelength of 185 nm for removing the contaminating material formed on an optical unit (see col.9, lines 35-40). It would have been obvious to one having ordinary skill in the art at the

Art Unit: 2851

time the invention was made to utilize the radiation source having wavelength of 185nm as taught by Akagawa into the exposure device and corresponding method of Hase as modified by Somekh for the purpose of cleaning optical components and improving the quality of the images to be printed.

***Response to Amendment***

6. Applicant's amendment filed May 15, 2003 have been entered. Applicant's amendment to the specification is sufficient in overcoming the objection to the drawings. In view of applicant's remarks, the rejection of claims 3 and 5 under 35 U.S.C. 101 as claiming the same invention as that of claims 2 and 1 respectively of co-pending application 09/988,391 is withdrawn. The rejection of claims 1, 2, 4 and 6-14 under the judicially created doctrine of obviousness-type double patenting over claims 1-8 of the above co-pending application is still maintained.

Turning to the prior art rejection, applicant's arguments have been carefully reviewed but they are not found to be persuasive.

In response to applicant's arguments that Hase and Somekh can not be combined and "the rejection is simply the result of impermissible picking and choosing of various elements, based solely on applicant's disclosure as blueprint". The Examiner respectfully disagrees with the applicant. Firstly, the Applicant is reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Secondly, it has been held that it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

As discussed in the prosecution history of the present case, Hase teaches an exposure apparatus and method for cleaning the contaminants on the plural optical elements, comprising a light radiation system (6) for providing a projection beam of electromagnetic radiation having a wavelength of 250nm or less and a gas supply (8a, 10a) constructed and arranged to supply a purge gas to a space in the exposure apparatus, the space containing an optical component, wherein the purge gas comprises an amount of oxygen having a predetermined concentration (e.g., not greater than a few grams per 1m<sup>3</sup>) (see col.4, lines 45-49). Hase further teaches the purge gas comprising inert gas such as helium, argon, nitrogen or a mixture thereof (see claim 5 of Hase). Thus, Hase clearly teaches a lithographic projection apparatus where “a gas supply constructed and arranged to supply a purge gas to a space in the apparatus, the space containing an optical component, wherein said purge gas comprises an oxygen-containing species” as claimed in claim 1 (for example). Now, the issue here is whether or not one having ordinary skill in the art at the position of Hase to select “an oxygen containing species” of Hase from water, nitrogen oxide and oxygen-containing hydrocarbons. Therefore, understanding that the 35 U.S.C. 103(a) rejection is made by combining Somekh’s entire cleaning system with Hase’s apparatus” is not totally correct. Somekh teaches a lithographic system where a purge gas/“an



Art Unit: 2851

oxygen containing species"/oxidizer is supplied to a space containing an optical element.

Somekh further teaches oxidizer/ "the purge gas comprises an oxygen containing species" may be sourced/selected from any oxygen containing compound such as "ozone, N<sub>2</sub>O, water vapor, doped oxygen compounds, alcohol compounds and other like compounds" (see col.5, lines 45-50). In view of such teachings, it would have been obvious to one having basic knowledge in the art to select the "purge gas comprises an oxygen-containing species" of Hase from "water, nitrogen oxide and oxygen-containing hydrocarbons" as suggested by Somekh to obtain the present invention for removing the contaminants at highest level.

With respect to claim 2, Applicant argued that Hase does not correlate to the ration of oxygen-containing species recited in claim 2; the Examiner respectfully disagrees. Hase meets the limitation as claimed since Hase teaches the concentration of oxygen is few grams/m<sup>2</sup> that concentration of oxygen is within the range of 1ppb to 10ppm, as claimed.

Finally, with respect to claims 8, 13 and 14, applicant argued that the cited references do not teach "cleaning by irradiating the optical component with radiation having a wavelength of less than 250nm in the presence of an oxygen containing species". This argument is respectfully traversed since using an electromagnetic radiation having a wavelength of 250nm or less for removing the contaminants in a lithographic apparatus is well known per se as taught by Akagawa and as discussed, Hase as modified by Somekh teaches 'an oxygen containing species' as recited in claims 8, 13 and 14 and the rejection here is made under 35 U.S.C. 103(a).

**7. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2851

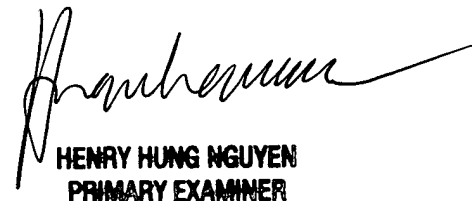
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 703-305-6462. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

hvn  
July 5, 2003



**HENRY HUNG NGUYEN**  
**PRIMARY EXAMINER**